<div align="center">**REMARKS**</div>

Claims 1-3, 5-18, 23-25, and 27-29 are currently pending in the subject application and are presently under consideration. Claims 1, 6-11, 13-14, 17-18, 23-25, and 27-29 have been amended on pages 2-6. Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

I.   Objection to Claim 10

Claim 10 has been objected to because of a grammatical error. Withdrawal of this objection is respectfully requested in view of the amendments to claim 10 that correct the grammatical error.

II.   Rejection of Claims 1, 10, 23 and 29 Under 35 U.S.C. §101

Claims 1, 10, 23 and 29 stand rejected under 35 U.S.C. §101 as allegedly being directed to non-statutory subject matter. Withdrawal of this rejection is respectfully requested in view of at least the following reasons. Independent claim 1, as amended, recites *at least one processor that executes computer readable components in an industrial automation environment*. Further, independent claim 10 has been amended to recite *at least one processor that executes the following computer executable components stored on at least one computer readable medium*. Furthermore, independent claim 23, as amended, recites *employing at least one processor that executes computer executable instructions in an industrial environment to perform the following acts*. Similarly, independent claim 29 has been amended to recite *at least one computer readable storage medium storing computer executable instructions that when executed by the at least one processor implement components*. It is submitted that such amendments clearly place these independent claims (and associated dependant claims) within the bounds of statutory subject matter in accordance with 35 U.S.C. § 101; withdrawal of this rejection is thus respectfully requested.

III. Rejection of Claims 1 Under 35 U.S.C. §102(b)

Claim 1 stands rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Mehta (US 5,999,933). Withdrawal of this rejection is requested for at least the following reasons. Mehta fails to disclose or suggest all limitations set forth in the subject claims.

A single prior art reference anticipates a patent claim only if it *expressly or inherently describes each and every limitation set forth in the patent claim*. *Trintec Industries, Inc. v. Top-U.S.A. Corp.,* 295 F.3d 1292, 63 USPQ2d 1597 (Fed. Cir. 2002); *See Verdegaal Bros. v. Union Oil Co. of California,* 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The *identical invention must be shown in as complete detail as is contained in the … claim*. *Richardson v. Suzuki Motor Co.,* 868 F.2d 1226, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989) (emphasis added).

One or more embodiments of the subject specification relate to facilitating access to industrial device data by utilizing a standard database connection, which mitigates the need to run custom and/or specialized software on the industrial device. In particular, elements of respective data structures associated with the industrial device are mapped to the columns of a row, or record of a relational table, and a standard database connection (*e.g.,* JDBC and the like) is employed (*e.g.,* by a remote machine) to access the data within the relational table. In this regard, independent claim 1, as amended recites *a mapping component, residing within the industrial automation environment, that generates a database table from one or more user defined data structures associated with an industrial control device, the mapping component discovers the one or more user defined data structures and maps elements of the one or more user defined data structures to respective columns of at least one of a row or record of the database table.* Mehta fails to disclose these novel features, as discussed below.

Mehta relates to a system and method that facilitates collecting data structures in a memory dump taken for a hardware/software system into logical data tables stored in a database. Specifically, the system creates logical tables from information in the memory dump. Moreover, data structures, such as a linked list of PCBs (process control blocks), are mapped onto a logical table, such that, the logical table collects into a single table all of the PCBs of the memory dump. Other examples of types of data structures represented by logical tables are PCBX tables and DCTs (destination control tables). However, nowhere does Mehta disclose user defined data structures associated with an industrial control device, as recited in independent claim 1. In addition, the system of Mehta utilizes a *user selected* template library and a type of data structure for data extraction and thus fails to teach or suggest a component that *discovers the one or more user defined data structures.* Further, the system of Mehta does not disclose an industrial automation environment and hence does not teach aspects of independent claim 1 that recite *a*

mapping component residing within the industrial automation environment. Furthermore, Mehta is silent with respect to *mapping elements of a user defined data structure to respective columns of at least one of a row or record of the database table.* Rather, the mapping feature of Mehta maps *from a memory dump* (*e.g.*, a crashed software/hardware) to a table, wherein one table is created per user selected type of data; and one row in the table to represent a data structure. Mehta makes available power of standard base management systems to determine cause of crash of a hardware/software system for which the memory dump was taken. Such is not the mapping from *an industrial control device* (*e.g.*, non-crashed and operational entity) to a table for eliminating or mitigating *a requirement of proprietary data access software*; such as a need to develop, install and execute custom interface and specialized drivers on the industrial control and computing devices. Accordingly, Mehta fails to teach or suggest all aspects of independent claim 1.

In view of at least the foregoing, it is clear that Mehta fails to teach or suggest each and every element as recited in amended independent claim 1. Accordingly, it is believed that the subject claim is in condition for allowance, and the rejection should be withdrawn.

IV.   Rejection of Claims 2, 3, 5-7, 9-18, 23-25, 28 and 29 Under 35 U.S.C. §103(a)

Claims 2, 3, 5-7, 9-18, 23-25, 28 and 29 stand rejected under 35 U.S.C. §103(a) as allegedly being obvious over Mehta (US 5,999,933) in view of Scott (US 2003/0172046). It is respectfully requested that this rejection be withdrawn for at least the following reasons. Mehta, alone or in combination with Scott, fails to teach or suggest all features recited in the subject claims.

> *[T]he prior art reference (or references when combined) must teach or suggest all the claim limitations.* See MPEP § 706.02(j). *See also KSR Int'l Co. v. Teleflex, Inc.*, 550 U. S. 398, 04-1350, slip op. at 14 (2007). The teaching or suggestion to make the claimed combination and the reasonable expectation of success must be found in the prior art and not based on applicant's disclosure. *See In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) (emphasis added).

As discussed above, one or more embodiments of the subject application relate to representing data structures within industrial controllers as database tables that can be accessed

via a standard database interface (*e.g.*, JDBC, ODBC and the like). In particular, data is stored within an industrial device, such as, data relating to performance, control, state, errors, *etc.* Typically, this data is stored within user defined data structures. Moreover, the systems and methods herein disclose a mechanism to represent this data as database tables. Specifically, the elements of respective data structures are mapped to the columns of a row, or record of the relational table, such that a remote machine can employs a standard database connection to access the data within the relational tables. In this regard, independent claim 1 recites *a mapping component, residing within the industrial automation environment, that generates a database table from one or more user defined data structures associated with an industrial control device, the mapping component discovers the one or more user defined data structures and maps elements of the one or more user defined data structures to respective columns of at least one of a row or record of the database table.* Similarly, independent claim 10 recites *a mapping component that discovers one or more user defined data structures utilized by the industrial control device and maps at least one element of the one or more user defined data structures to at least one respective column of a row or record in the one or more relational database tables, the mapping component populates the one or more relational database tables with data from the one or more user defined data structures.* In addition, independent claim 23 recites *discovering one or more user defined data structures utilized by an industrial control device; mapping each element of the one or more user defined data structures to a respective column of at least one of a row or record of a database table; populating the database table with data from the industrial control device stored in the one or more user defined data structures via a processing module; and enabling access to the data within the database table, without platform specific data access software associated with the industrial control device.* Furthermore, independent claim 29 recites *means for discovering at least one user defined data structure utilized by an industrial control device and mapping each element of the at least one user defined data structure to a respective column of at least one of a row or record of at least one database table, the at least one database table mapped with data from the at least one data structure; and means for transferring data between the industrial control device and a remote entity as compact binary information via the at least one database table.* Mehta and/or Scott fail to teach or suggest these novel aspects, as explained below.

Mehta relates to a hardware/software system for analyzing memory dumps. The system collects data structures in a memory dump into logical tables, one logical table per selected type of data structure. The logical tables are generated by use of extraction logic for extracting data in data structures in the memory dump. The extraction logic is used in conjunction with a template library that contains data structure definitions for various types of data structures. The extraction logic, together with the template library, makes possible populating logical tables with the contents of data structures found in the memory dump. As discussed above, Mehta fails to teach or suggest discovery of one or more user defined data structures utilized by an industrial control device and/or mapping of at least one element of the one or more user defined data structures to at least one a respective column of a row or record in the one or more relational database tables. Further, Mehta is silent with respect to populating the one or more relational database tables with data from the one or more user defined data structures and thus fails to disclose all aspects of independent claims 1 and 10. In addition, nowhere does Mehta teach or suggest enabling access to the data within the database table, without platform specific data access software associated with the industrial control device, as recited independent claim 23. Furthermore, independent claim 29 recites means for transferring data between the industrial control device and a remote entity as compact binary information *via* the at least one database table. Mehta is silent with respect to at least this novel aspect. Moreover, Scott fails to cure the aforementioned deficiencies of Mehta with respect to independent claims 1, 10, 23 and 29.

In particular, Scott relates to a method and system for managing devices *via* a database application programming interface. The system receives a request for a database operation, and maps the request to at least one command for a non-database operation. Specifically, the system may execute the at least one command by making a system call *via* a device API, or by making a remote procedure call to a device. Scott merely relates to a computing arrangement that may be an embedded system, such as, cellular telephones, pagers, web tablets, cable modems, home gateways, set-top boxes, industrial robots, programmable logic controllers, car infotainment and telematics devices. However, Scott is silent with respect to discovering and/or mapping user defined data structures associated with the industrial robots and/or programmable logic controllers. Further, Scott does not disclose *mapping elements of a user defined data structure to respective columns of at least one of a row or record of the database table* and thus fails to teach or suggest all aspects of independent claims 1, 10, 23 and 29.

Additionally, dependent claim 6, as amended, recites *the mapping component is activated at least one of when a request to access the industrial control device's data is received, periodically, based on a time lapse, or based on a polling technique.* Mehta, alone or in combination with Scott, fail to teach or suggest this novel aspect. Further, dependent claim 7, as amended, recites *the mapping component maps mapping component maps a single user defined data structure to more than one database table.* Mehta and/or Scott fail to disclose this novel feature. Further, Mehta and/or Scott are silent with respect to *mapping component each of the one or more user defined data structures to a respective row of the database table* as recited in dependent claim 9. Furthermore, Mehta discloses extraction software that allows a user to select the proper template library name and a type of data structure (by selecting its name), *e.g.*, PCB or SEG type, with which to ultimately populate a logical table. Thus, an explicit user input is required for the creation of a logical table. In contrast, dependent claim 11 recites *the mapping component is executed within at least one of a module of the industrial control device, a host computer, or the interface component, without user intervention.* Scott is silent with respect to this novel feature. Dependent claim 18, as amended, recites *an intelligence component that facilitates mapping, reading and writing the industrial control device data by employing one or more machine learning techniques, the intelligence component determines at least one of when, how or which data structures associated with the industrial control device are transformed to the one or more relational database tables, by employing at least one classifier.* Nowhere do Mehta and/or Scott teach or suggest utilization of machine learning techniques and accordingly fails to disclose each and every aspect of dependent claim 18.

In view of at least the foregoing, it is readily apparent that Mehta, alone or in combination with Scott, fails to teach or suggest each and every element as recited in independent claims 1, 10, 23, and 29 (and associated dependent claims). Accordingly, withdrawal of this rejection is respectfully requested.

V.   Rejection of Claim 8 Under 35 U.S.C. §103(a)

Claim 8 stands rejected under 35 U.S.C. §103(a) as allegedly being obvious over Mehta (US 5,999,933) in view of Ito *et al.* (US 2004/0143791). It is respectfully requested that this rejection be withdrawn for at least the following reasons. Claim 8 depends from independent

claim 1. As discussed above, Mehta fails to teach all features of independent claim 1. Ito *et al.* relates to a system and method for conversion of XML code to a binary format that can be efficiently loaded and executed during runtime, but does not make up for the aforementioned deficiencies of Mehta with respect to the independent claim 1. Specifically, Ito *et al.* relates to converting each line of XML code to a fixed-length token having a command representative of the line of XML code and an associated reference to the unique code element in the element palette that is found in the line of XML code. The conversion produces a binary output that contains the element palette, the data, and the tokens. The binary form of the XML code is saved and can be delivered as a file or served as a data stream. However, Ito *et al.* is silent with respect to *transferring data stored in the database table between the industrial control device and a remote system as a compact binary file*, as recited in dependent claim 8. Accordingly, withdrawal of this rejection is respectfully requested.

VI.   Rejection of Claim 27 Under 35 U.S.C. §103(a)

Claim 27 stands rejected under 35 U.S.C. §103(a) as allegedly being obvious over Mehta (US 5,999,933) and Scott (US 2003/0172046), as applied to claims above, and further in view of Ito *et al.* (US 2004/0143791). Claim 27 depends from independent claim 23. As discussed *supra*, Mehta and/or Scott fail to teach or suggest all aspects of independent claim 23. Further, based on the discussion with respect to dependent claim 8, it is clear that Ito *et al.* does not teach or suggest *transferring data from the database table to a remote entity in one or more compact binary packets*, as recited in dependent claim 27. Hence Ito *et al.* fails to remedy the aforementioned deficiencies of Mehta and/or Scott with respect to the independent claim 23. Accordingly, it is respectfully requested that this rejection be withdrawn and claim 27 be allowed.

CONCLUSION

The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [ALBRP330US].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicant's undersigned representative at the telephone number below.

Respectfully submitted,

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